

Methods for Foodborne Disease Surveillance in Selected Sites

Report of a WHO consultation
18-21 March 2002
Leipzig, Germany



World Health Organization
Department of Communicable Disease Surveillance and Response

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Chapter 1

Introduction

A World Health Organization (WHO) consultation on Methods for Foodborne Disease Surveillance in Selected Sites was held at the University of Leipzig in Germany from 18 to 21 March 2002. A total of 26 experts, including the local organizers, participated in the consultation. The consultation was opened by Professor E. Weise, Head of the Division of Food Hygiene at the German Federal Institute for Health Protection of Consumers and Veterinary Medicine, on behalf of the German Federal Minister for Consumer Protection, Nutrition and Agriculture. Professor Weise drew attention to the fact that foodborne diseases are a significant public health problem, particularly those in developing countries.

Both Professor J. Gropp, Director of the Institute of Animal Nutrition and Professor K. Fehlhaber, Director of the Institute of Food Hygiene, of the Veterinary Department, University of Leipzig, welcome participants to Leipzig. The University hosted the consultation which was sponsored by the German Federal Government and the Centers for Disease Control and Prevention (CDC), Atlanta, USA.

Dr Peter Braam welcomed participants on behalf of the Director-General of WHO and the Executive Directors of the Clusters of Communicable Diseases (CDS) and Sustainable Development and Healthy Environments (SDE).

Dr Braam mentioned that foodborne diseases are a worldwide problem significantly affecting people's health. WHO is encouraging Member States to strengthen national foodborne disease surveillance systems and, where appropriate, to collaborate both regionally and internationally in the detection and response to foodborne disease. The absence of reliable data on the burden of foodborne disease impedes understanding about its public health importance. What is required is a more accurate estimate of the global burden of foodborne disease and a possible mechanism of obtaining such data would be to initiate a number of projects for enhanced surveillance in selected sites and to look at the possibility of extrapolating results to determine the global picture. The consultation elected Mr Alan Reilly as chair and Dr Sonja Olsen as rapporteur.

Chapter 2

Objectives

The broader objective of the consultation was to assist WHO in developing a global strategy to reduce illness from foodborne disease. One of the first steps in this process is to develop guidance for establishing the global burden of foodborne disease by measuring the frequency of foodborne illness in selected countries.

Consultation Objectives

1. Categorize disease surveillance systems according to their capacity to generate information on foodborne diseases.
2. Establish criteria for initiating studies for identifying the burden of foodborne disease in selected countries.
3. Develop a general work plan for conducting studies for identifying the burden of foodborne disease in selected countries.
4. Assess whether extrapolation of results to other countries in the regions is possible to obtain a global overview.
5. Describe how the burden of disease estimates contribute to the development of systematic and sustainable preventive measures aimed at a reduction of foodborne illnesses.

Chapter 3

Categorization of disease surveillance systems

Disease surveillance systems can be categorized according to their capacity to generate information on foodborne diseases. Countries have fundamentally different public health systems resulting in wide variations in the level of reporting of foodborne disease. Factors that may contribute to the existing variations include economic development, access to health care, public health infrastructure, political stability, demographic features (rural/urban, literacy, age, religion, food preferences), and existing or competing public health issues (e.g., HIV/AIDS). Any recommendations for enhancements to surveillance to determine the burden of foodborne disease need to take into account these fundamental differences in structure. It should also be noted that surveillance systems for foodborne disease may be part of broader national surveillance system that include nationally notifiable communicable diseases.

Listed in Annex 1 are four general categories that describe foodborne disease surveillance. These categories apply to ongoing foodborne disease surveillance activities conducted by ministries of health. While a country may be primarily within one category, it may have surveillance elements from more than one category. Outbreak detection and response may occur at any level; however, the sensitivity to detect outbreaks varies considerably between categories. These categories do not necessarily address the role and responsibilities of ancillary agencies (e.g., Department of Agriculture). Advancement from one category to another depends on many factors including resources, national policy, and political will.

Functions of surveillance include detecting outbreaks; determining the etiology and natural history of disease; detecting changes in disease agents and health practices; and guiding health policy.

Chapter 4

Criteria for initiating studies for identifying the burden of foodborne disease in selected countries

For the purpose of developing a global estimate of the burden of foodborne disease, it is important to consider the following criteria when selecting a country:

- Lack of data on burden of foodborne disease in the country and the region;
- Preferably in surveillance category 3;
- Some available data on food consumption and contamination;
- Scientific and technical resources and infrastructure available;
- Inclusion of countries from several regions;
- A country that is representative of a large proportion of the world's population in terms of ethnicity and socio-economics;
- Not to duplicate existing efforts by other organizations.

WHO may wish to consider other criteria, including the willingness of a country to participate and provide resources and the ability to garner support from other organizations in the country.

Conducting studies to assess the burden of illness provide important information for policy formation and disease prevention. These studies can vary considerably in cost, depending on the design and setting in which they are conducted. Countries considering undertaking these studies need to weigh up the benefits that they will provide to the health system. While it is possible for a country to conduct a rapid assessment of gastrointestinal disease burden using a simple survey, it may be more beneficial to improve routine surveillance for foodborne disease.

The stage of development of a country's surveillance systems will influence a country's ability to conduct an assessment of disease burden, as surveillance can be a key source of complimentary data (summarized in Annex 2). The more sophisticated the surveillance system is, the more specific the outcomes of the study will be in regard to etiology. Where these studies are more complicated the cost and training required also increases. It may be necessary to obtain advice or assistance from external consultants or field experts regarding the design, conduct, and analysis for these studies. Generally these assessments have only limited ability to attribute disease in the community to specific food sources and have variable use for risk analysis.

Chapter 5

General work plan for conducting studies for identifying the burden of foodborne disease in selected countries

The primary task for investigators when planning an assessment of the foodborne disease burden is defining the specific aims of the study. Clearly defined aims make it easier to establish how, when, and where the study is carried out.

If a country has no surveillance system, or mainly syndromic surveillance, it will need to investigate the use of laboratory testing either at a regional center, or possibly out of country. These studies can provide an important source of training and capacity building capacity for local laboratory staff and epidemiologists, and as such assist in the establishment of a surveillance system. Increasing the laboratory capacity of a country for these specific studies clearly has a cost implication, but may yield important benefits.

It is very important to allow sufficient time to conduct these assessments, including time for planning, conducting, analysis, and communicating the result of the study. A simple three-month cross-sectional survey can take in excess of a year to complete, even without extra laboratory testing.

There are many other issues that need consideration before designing these studies. These may include the following:

- Specific location of survey sites and their selection;
- Languages and cultural practices of people surveyed;
- Sample size of the study;
- Means of collecting the specific data;
- How the data are to be analyzed;
- Generalizability - how comparable are the results of the study with those of the target population within the country;
- Quality assurance for the conduct of the study;
- Local ethical considerations.

Chapter 6

Components to include in a work plan

A. Situation analysis

Countries should conduct a situation analysis with the objective of determining available resources and logistic restraints. The following components should be considered:

1. Government support
Some of the information generated in conducting these studies may prove sensitive to government. This needs to be managed very carefully, especially where trade or tourism are major industries.
2. Identifying potential partners and assessing commitment to the project
Partners might include networks of health workers, hospital staff, non-governmental organizations, researchers, and other government agencies.
3. Analysis of infrastructure and population breakdown of the country, including existing networks and operation of the healthcare system.
4. Approval from national and local ethics committees or review boards, where applicable.
5. Evaluate the existing surveillance system for foodborne disease using formal evaluation criteria (e.g., CDC's guide to evaluating surveillance systems).
6. Seasonality may be an important factor to take into account; however, if resources are limited it may not be feasible to survey the population over a whole year.

B. Selecting Sites with the Selected Country

To make best use of available resources, it is necessary to identify selected sites to conduct a burden of illness assessment. Many factors contribute to the process of site location and local judgment and knowledge will be critical in choosing optimal sites. If the aim of the study is to determine the burden of illness at the national level, then the representativeness of the sites of the overall country population should be considered.

Consideration should be given to the following:

- The nature and living situation of peoples.
- Ability to build on existing surveillance networks.
- Proximity to adequate laboratory facilities
- Availability of major hospitals or care seeking facilities
- Demographic, economic, social and geographic diversity and representativeness of population
- Size of the catchment population and ability to accurately quantify it
- Settings for interviewing (e.g., schools, homes, work places, hospitals)
- The impact on the number or size of the sites on the quality of the data

C. Population-based Study

The goal of the population study is to determine the prevalence of self-reported diarrhea and frequency with which patients seek care. There are two types of study designs, cross-sectional and cohort (see below). Although the cross-sectional design may be more feasible, the final decision about methodology will rely on local conditions and capacity.

1. Cross sectional surveys

In a cross-sectional study, investigators survey the population to determine the proportion of people reporting diarrhea in the weeks prior to the survey. This can give an estimate of the total burden of this disease, but requires supporting data from laboratories to estimate proportions of the burden due to specific pathogens. Investigators may collect data for these surveys using personal interviews, postal questionnaire, or telephone.

The surveys are usually a multi-stage cluster design with the selection of a household as the primary unit of selection. Investigators then randomly-select an individual from the household and ask questions about demographic characteristics, recent diarrhea, and some information on risk factors. It is quite simple to include nested case-control studies in this study design, which results in obtain more information on the risks for diarrhoeal illness, although this is not pathogen specific.

Some of the major advantages of this study design are that they are comparatively cheap and require less planning. They can also be conducted relatively simply and quickly. The major disadvantage of this study design is that it provides information

on prevalence of diarrhea, rather than incidence. Surveys of diarrhea cannot directly determine the proportion of disease due to different pathogens.

In most instances, where investigators conduct these surveys there is a need to conduct extra testing of fecal specimens, or validate laboratory-based surveillance data. Investigators may also need to survey laboratories to determine, what types of pathogens may not be detected or notified.

2. Cohort studies

In a cohort study, investigators enroll people into a study for a period of months or years. During the study, participants report episodes of diarrhea and provide fecal specimens for testing. This allows investigators to obtain very specific information about the relative contribution of different pathogens to diarrhea. These cohort studies are often supplemented using other forms of data collection, including sentinel surveillance of general practitioners, and cross-sectional surveys.

These studies are the most rigorous methodologically and provide very specific information about the specific incidence of diarrhea. The major disadvantage is that they can be very costly and time consuming. They can take years of planning and may require follow-up of thousands of study subjects.

Additional factors to consider in either population-based study include the definition of diarrhea and specific information to collect on your questionnaire (e.g., demographics, illness, care seeking behavior, access to healthcare, water quality).

D. Conduct Active Surveillance

The goal of the active surveillance is to capture all cases in a population seeking care and validate the information collected by existing surveillance systems. This may be much more difficult for some healthcare facilities, such as private hospitals. One way to establish this type of active surveillance is to invite physicians or healthcare workers to become partners in the research, which is essentially a form of sentinel surveillance. In some countries, people all attend community health centers, which means that active surveillance is relatively easy. Investigators need to consider the different levels of access to healthcare, so that they can determine the fraction of people that present to all facilities.

E. Conduct Laboratory Survey

The aim of conducting a laboratory survey is to determine the testing practices and capacity of clinical laboratories. The survey should specifically determine:

1. The range of analyses undertaken by laboratories.

2. The number of stools tested annually.
3. The number of positive stools samples for pathogens potentially due to food.

It is desirable to conduct this throughout the country, where possible. Options include mail out surveys, telephone interviews, and in-person interview. There may be significant resources associated with getting a good response rate. This survey may be more difficult in some countries than others, as there may low participation from private laboratories.

F. Estimation of the contribution from food

There are several other complementary studies and data sources that are required to estimate the contribution of food to specific diseases. These data sources may include other cross sectional surveys, case-control studies, evaluations of surveillance systems, and aggregated data on outbreaks. Some countries have assessed the burden of disease specifically due to food, although it is extremely difficult and the reliability of the estimates is unknown.

In Annex 3 to 6, a description is given of studies estimating the burden of diarrhoeal disease in certain countries. The different components and surveys are summarized and can serve as an example to support the development of a work plan.

Chapter 7

Extrapolating results of burden of illness data

Extrapolating the results of the burden of illness data to other countries in the region is possible to get a world wide overview. For WHO to more accurately estimate the global burden of foodborne disease, it will help to have data from more countries. Several studies have been completed or are underway in a number of countries (see Annexes). It is important to compare the results of these studies to examine regional differences, and the effects of extrapolating data from different regions to arrive at a global estimate of foodborne disease. Although imprecise, the global estimate can point out the magnitude of the problems caused by contaminated food.

While it may be possible to generalize the results of these studies to other countries that are similar, there are several limitations. When generalizing the results of a burden of food borne disease assessment to any other population, investigators should consider comparability by assessing factors that contribute to food borne diseases. These might include the prevalence of contaminants in food, cultural habits, food preparation and consumption patterns, and sanitation.

In practice these factors are seldom described, therefore investigators should assess the similarity between the study site and other countries in terms of rates of notifiable enteric diseases, demographic make-up, life expectancy, and other health indicators. Food specific characteristics, such as domestic production, may also be useful. As a general principle, estimates are more appropriate the more proximate the populations are.

Chapter 8

The contribution of burden of disease estimates to the development of systematic and sustainable preventive measures

It is expected that foodborne disease burden studies may demonstrate more illness than previously recognized from existing surveillance. In most countries foodborne diseases will be one of the most prevalent communicable diseases. Therefore, it is likely that in the long-term burden of illness studies will contribute to fostering national and international political will to develop food safety policies. Such policies will ultimately aid in the development of surveillance systems, infrastructure, and human resources directed at foodborne diseases at the national and local level. Therefore, implementation of the recommendations from this consultation should ultimately contribute to the development of systematic and sustainable preventive measures aimed at reducing foodborne disease.

Where health agencies conduct special studies to estimate the burden of foodborne illness, it is important that there is an attempt to leave lasting benefit for public health systems. This is particularly important for countries where surveillance is absent, or in need of improvement. Conducting these studies should provide support in terms of training and capacity building to strengthen the existing surveillance system.

Chapter 9

Final general recommendations

- WHO should encourage development of an inventory of existing studies on burden of foodborne disease and a comparison of their results;
- WHO should encourage Member States to conduct studies to determine the burden of foodborne disease and provide technical support to these countries;
- WHO should select countries using the criteria identified in this report and identify resources to support burden of illness studies;
- WHO should seek resources to enhance laboratory-based surveillance and outbreak detection and response for foodborne disease;
- Member States should seek to improve their existing foodborne disease surveillance system.

Annex 1

Categories of Foodborne Disease Surveillance

Category 1 No formal surveillance

Description of system

This situation typically exists in countries with political instability, recent history of war, or extreme poverty. The public health system is very low priority or non-existent. Some elements of surveillance may be undertaken by outside agencies.

Data elements

None.

Information expected

Large or unusual outbreaks may be detected and investigated by an outside agency (e.g., non-governmental organizations).

Category 2 Syndromic surveillance

Description of system

Syndromic surveillance is the collection, analysis and interpretation of syndromic data (e.g., diarrhea or food poisoning) from at least selected sites. The surveillance system should use standard case definitions for classifying syndromes. Data should be routinely reported, collated at a central level and promptly disseminated to the public health community. These systems may function with or without laboratory capacity (ministry of health or hospital) but there is no formal laboratory-based surveillance system.

Data elements

Case counts (e.g., see WHO cholera guidelines).

Information expected

Trends over time, seasonal variation.

Define at-risk and high-risk populations.

Recognition of point source outbreaks at the local level.

Recognition of large or unusual outbreaks at the national level.

Category 3 Laboratory-based surveillance

Description of system

Laboratory-based surveillance is the collection, analysis and interpretation of laboratory data from at least selected sites. The surveillance system should use standard case definitions for classifying diseases. Laboratories should use standardized methods for pathogen identification with recognized international quality assurance systems. Data should be routinely reported, collated at a central level and promptly disseminated to the public health community. Laboratory-based surveillance provides higher quality data than syndromic surveillance; countries should strive to develop this type of surveillance system.

Data elements

Etiologic identification

Etiologic agent-specific case counts

Pathogen characterization (e.g., serotyping, antibiogram, etc.)

Information expected

Etiologic agent-specific trends over time, seasonal variation

Define at-risk and high-risk populations

Recognition of point source at the local and diffuse outbreaks at the national level

Category 4 Integrated food-chain surveillance

Description of system

Integrated food-chain surveillance (IFCS) is the collection, analysis, and interpretation of data from animals, food, and humans. The surveillance system should use standard case definitions for classifying diseases. Data should be routinely reported, collated at a central level and promptly disseminated to the public health community. IFCS allows the attribution of burden of illness to specific food categories through the use of detailed information from monitoring food and animals.

Data elements

Etiologic identification

Etiologic agent-specific case counts in the population

Etiologic agent-specific prevalence in animals and foods

Pathogen characterization (e.g., serotyping, antibiogram, etc.)

Community-level case counts

Information expected

Etiologic agent-specific trends over time, seasonal variation

Reliable incidence rates

Define at-risk and high-risk populations

Recognition of point source at the local and diffuse outbreaks at the national level

Ability to use food and/or animal data to generate hypotheses for human disease outbreaks

Comprehensive estimates of burden of foodborne disease

Ability to assess the effectiveness of food safety policy interventions

Ability to attribute burden of foodborne disease by food category

Ability to detect and control hazards in food

Ability to recognize emerging pathogens in animal

Annex 2

Surveillance systems in relation to the assessment of the burden of disease

Surveillance Category	Expected Outputs	Contribution of Surveillance System to Burden of Disease Estimate	Training Required to Conduct Burden of Disease Assessment	External Support Required to Conduct Burden of Disease Assessment	Resources and Cost Associated with Conducting a Burden of Diseases Assessment	Ability of Surveillance System to Attribute Disease to Specific Food Sources	Usefulness of Surveillance Data to Contribute to Risk Analysis
No formal surveillance	Non-specific disease parameters	None	Minimal	High	Minimal	None	None
Syndromic surveillance	Non-specific disease parameters	Limited	Minimal	Moderate	Minimal	None	Limited
Laboratory-based surveillance	Etiology-specific, including subtypes	Potentially significant	Laboratory and epidemiological	Minimal	Increased complexity, laboratory and epidemiological cost	Moderate	Potentially significant
Integrated food-chain surveillance	Etiology-specific, including subtypes, greater precision, population-based, reservoirs	Significant	Laboratory and epidemiological, more differentiated research group	None	Increased complexity, laboratory and epidemiological cost, including food and agricultural laboratories	High	High, allows validation of models

Annex 3

Studies estimating the burden of diarrhoeal disease in England and Wales, and in the Netherlands (example of a cohort study)

Example from countries that have an existing general-practice based sentinel network, attempting to cover a representative proportion of the population.

This study as set up as a prospective cohort and consisted of two large components, a community-based component and a general practice-based component.

Community-based component

An age-stratified sample was drawn for the population registered at the general practices in the network, and invited to participate. Participants completed a questionnaire about base-line characteristics at the start of follow-up. Follow-up lasted one year and symptoms were reported on paper on a weekly basis. In case of diarrhea or vomiting, the patients reported immediately by telephone to the study team, that decided if the symptoms met the case definition. Patients that met the case-definition submitted one or more stool samples for laboratory analysis, and completed a questionnaire on symptoms, and health care utilization.

General practice-based component

All patients consulting a participating general practitioner for gastroenteritis meeting the case definition were reported and invited to complete a questionnaire and submit a stool sample. Reporting was done on weekly forms, by age, gender and practice.

Additional aspects in England and Wales

Half of the general practices send in samples for all consulting cases, the other half followed the normal procedures regarding submitting stool samples to the laboratory for testing the requested pathogens, thereby linking the results of the general-practice study and the community-based study to laboratory-based surveillance data.

Laboratory testing

Stool samples were tested for a number of pathogens, including *Salmonella*, *Campylobacter*, *Yersinia*, *Shigella*, Shiga-toxin producing *E.coli*, *Aeromonas*, *Staphylococcus aureus*, *Clostridium perfringens*, *Bacillus cereus*, rotavirus, adenovirus, astrovirus, Norwalk-like viruses, Sapporo-like viruses, *Giardia lamblia*, *Cryptosporidium*, *Entamoeba histolytica*, and *Cyclospora*. Stool samples were sent to a central laboratory by postal mail. Part of all stool samples from the Dutch study is stored in a stool bank for future investigations.

Outcomes of the studies

Both studies estimated the incidence of gastroenteritis and associated pathogens, identified high-risk populations, provided information on aspects of the economic and disease burden of disease.

In addition, by linking laboratory-based data to the results for the population, future data from laboratory surveillance can be extrapolated to community-based estimates.

Additional case control study

An additional case control study was nested in the cohort, both at the community-component and general-practice-based component. Controls in the community-based component were recruited from the cohort. Controls in the general-practice-based component were recruited from the patients consulting for other symptoms than gastroenteritis. The questionnaire contained information on risk factors, including food handling practices, foods consumed, contact with water, travel abroad, contact with animals. Though not very precise, these risk factors can also help in determining the fraction that is foodborne.

Annex 4

Studies estimating the burden of diarrhoeal disease in Australia, Canada, Ireland the United States (example of a cross-sectional study)

Example from countries that are using combination of population-based surveillance for laboratory-confirmed infections and cross-sectional surveys to cover a representative proportion of the population.

Such studies have been established in the United States (FoodNet), Australia (OzFoodNet), Canada and Ireland.

Community-based component

These studies utilize a telephone survey of general members in the population. Participants are asked whether or not they had diarrhea in the recent past (the time period varies from 1 to 4 weeks). Patients with diarrhea are also asked for other accompanying symptoms, whether they had sought medical attention and other indicators of health care utilization, and whether they had a stool specimen collected.

Laboratory testing

Stool samples are received at clinical microbiology laboratories and tested according to that laboratory's routine protocols. Usually, stool specimens are tested for *Salmonella*, *Shigella* and *Campylobacter*. Some laboratories also routinely test for *Yersinia*, Shiga-toxin producing *Escherichia coli*, *Cryptosporidium*, and *Cyclospora*. An occasional survey of the clinical microbiology laboratories is conducted in several of the countries to determine the routine laboratory practices.

Outcomes of the studies

All studies estimated the incidence of gastroenteritis and associated pathogens, identified high-risk populations, provided information on aspects of the economic and disease burden of disease. In addition, by conducting laboratory-based surveillance and the community survey in the same population, future data from laboratory surveillance can be extrapolated to community-based estimates.

Additional case control studies

Additional case control studies were nested in the population-based surveillance, is conducted in several countries. Controls are selected from the community where the population-based surveillance is conducted. The questionnaires contained information on risk factors, including food handling practices, foods consumed, contact with water, travel abroad, contact with animals. Though not very precise, these risk factors can also help in determining the fraction that is foodborne.

Annex 5

Studies estimating the burden of diarrhoeal disease in Viet Nam (example of a specific country plan involving a population survey, active surveillance, and a laboratory survey)

Population survey

A random Population Survey among households in the sentinel sites (urban and rural districts of both Hanoi and Ho Chi Minh City) to determine the prevalence and severity of self-reported diarrhoeal illness and the means by which patients seek medical assistance and diagnosis.

The survey questionnaire will be administered to 750 randomly selected households in each district (3000 questionnaires), and randomly selected persons in the house (a three-step cluster survey). One respondent will randomly selected from each household contacted, with all age groups eligible for inclusion.

An urban and a rural district from both Hanoi and Ho Chi Minh City have been selected for as sentinel sites. The districts are Dong Da and Dong Anh districts in Hanoi, and District 5 and Binh Chanh districts in Ho Chi Minh City.

Active surveillance

There will be active surveillance of diarrhea patients residing in the sentinel sites, presenting to sentinel hospitals. Epidemiological studies will be performed, including a case-control study.

Every patient with diarrhoeal disease who resides in the sentinel site district and presents to the sentinel hospital will be interviewed with the standardized questionnaire and have a stool specimen or rectal swab taken for culturing at one of the National Public Health reference laboratories.

Data will be analyzed to assess the number of infections caused by specific pathogens under surveillance; the seasonality of infections; and the incidence rates by sentinel site, age and gender.

As part of the active surveillance study, a matched case-control study will be conducted to explore hypothesized risk factors for diarrhoeal illness or for specific bacterial infections. Face-to-face interviews will be conducted with two age- and neighborhood-matched control subjects with no diarrhoeal illness in the previous 4 weeks, matched to each case-patient.

Laboratory practice survey

A Clinical Laboratory Practice Survey will be undertaken to assess clinical laboratory capacity (national, provincial, and district) and the current level of sampling and testing performed.

The laboratory survey is designed to gather information and data on:

- The range of analyses routinely undertaken by laboratories, plus the types of analyses undertaken upon request or suspicion;
- Laboratory capacity for isolating foodborne pathogens;
- The number of stools cultured annually for bacterial foodborne pathogens; and
- The number of annual isolates for specific foodborne pathogens.

By determining and monitoring the burden of diarrhoeal disease and specific foodborne diseases over time, the Food Administration should be able to document the effectiveness of new food safety initiatives in reducing the annual incidence of foodborne diseases.

To undertake this work, the Food Administration has commenced training Provincial and District Health services staff in population surveys, active surveillance, and foodborne outbreak investigations. Interviewers from sentinel sites in two districts of Hanoi and Ho Chi Minh City are now being trained, and it is expected that surveillance activities will commence in April 2002.

A comprehensive training manual on foodborne disease surveillance has been prepared and was used for training in January 2002. Guidance documents and forms to facilitate the implementation of an effective foodborne disease surveillance system have also been developed and reviewed.

Work continues in developing a system for the collection and analysis of outbreak-related specimens, and organizing reporting procedures. This activity is still in the early stages of implementation.

Issues that still require resolution include:

- Passive reporting of data on suspected and confirmed cases of diarrhoeal disease needs to be followed up weekly rather than monthly;
- Passive reporting from laboratory confirmed cases of foodborne disease needs to be undertaken weekly;
- Rationalization of the existing foodborne disease laboratory network to facilitate active national laboratory-based surveillance.

Annex 6

Other country-specific information

In some countries (e.g., Czech Republic and the Central Eastern European countries) nationwide surveillance of foodborne diseases is organized by the Public Health Service. Epidemiologic data are being collected from general practitioners, pediatricians, and hospitals. Epidemiologic data are linked with laboratory results. In some of those countries where National Reference Laboratories were established, the active surveillance of foodborne disease is performed as well. Utilization and further improvement through WHO expertise is required.

Annex 7

Glossary

Surveillance – The ongoing, systematic collection and evaluation of data describing the occurrence and spread of disease. A core public health activity.

Active surveillance – Surveillance where public health officers seek reports from participants in the surveillance system on a regular basis, rather than waiting for the reports.

Syndromic surveillance – Surveillance that captures a set of symptoms rather than a specific disease entity.

Sentinel surveillance – Surveillance conducted through monitoring key health events through sentinel sites, events, or providers.

Point source outbreak – A localized increase in the incidence of a disease linked to a family or community event.

Diffuse outbreak – A disseminated point source outbreak that is not recognizable because there may not be an increase in the number of cases at the local level but is detectable when data are aggregated over a larger area. The use of advanced laboratory subtyping methods may greatly enhance detection.

Annex 8

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Annex 9

Agenda

Time	Monday, 18 March 2002	Veterinary Faculty	Speaker
08.45 – 09.00	Registration		
09.00 – 9.45	Session 1 Opening and Introduction	<ul style="list-style-type: none"> Welcome Introduction, Objectives, Scope 	E. Weise, J. Gropp, K. Fehlhaber P.Braam (WHO)
9.45 – 10.15	Coffee break		
10.15 – 12.30	Session 2 Surveillance of FBD Session 2.1 Outcome of the Meeting: Network of Networks Session 2.2 Surveillance in Europe		<i>(15 min presentation & 5 min discussion)</i> C. Almeida B. Roestel (WHO/FAO)
	Session 3 Experience from sentinel site surveys		<i>15 min presentation & 5 min discussion</i>
	Session 3.1	<ul style="list-style-type: none"> The Netherlands –Sentinel Sites 	M. de Wit
	Session 3.2	<ul style="list-style-type: none"> USA – Sentinel Sites (FoodNet) 	F. Angulo
12.30 – 14.00	Lunch Break		
14.00 – 15.30	Session 4 Upcoming sentinel sites		
	Session 4.1	<ul style="list-style-type: none"> Vietnam 	D. Mahoney/ C. Lap
	Session 4.2	<ul style="list-style-type: none"> Uruguay 	M. Savio
	Session 4.3	<ul style="list-style-type: none"> Czech Republic 	B. Kriz
15.30 – 16.00	Tea/Coffee		
16.00 - 17.30	Session 4.4	<ul style="list-style-type: none"> Thailand 	S. Olsen/S. Kanarat/ S. Guharat
	Session 4.5	<ul style="list-style-type: none"> Kenya 	S. Kariuki/P. Mead
	Session 4.6	<ul style="list-style-type: none"> Jordan 	S. Gelders/A. Barmawi

Time	Tuesday, 19 March 2002		Villa Tillmanns	Speaker
09.00 - 09.30	Session 5 Methods of tracing and linking disease to food and food animals (20 min presentation & 10 min discussion)			T. Hald
09.30 – 10.30	Session 6 Methods of surveillance and utilization of the results Introduction of different types of surveillance systems, strengthen & weaknesses			(10-15 min presentation & 5 min discussion)
	Session 6.1 Routine epidemiological surveillance			P. Mead
	Session 6.2 Lab based surveillance			A. Kane
	Session 6.3 Outbreak investigations			S. Kariuki
10.30 – 11.00	Coffee break			
11.00 – 12.30	Session 6.4 Sentinel surveillance			
	Session 6.4.1	Basics for sentinel sites		S. Olsen
	Session 6.4.2	Criteria for selection sites		M. de Wit
	Session 6.4.3	Data collection and network		M. Kirk
	Session 6.4.4	Assessment of surveillance systems		E. Esteban
	Introduction Working groups			
12.30 – 14.00	Lunch Break			
14.00 - 15.00	Session 7 Implementation of sentinel surveillance systems-Split in 4 working groups			
	Group 1	Harmonisation of sentinel surveillance with existing surveillance systems; Network: e-mail, Networking, Equipment (PC, Programme, Training)		
	Group 2	Design of sentinel sites: no. and localisation of sites, surveyed population, surveyed syndromes and organisms, testing places (central, in each sites)		
	Group 3	Establishment of sites: accommodation, staff, training, Equipment Supplies (Capacity strengthening) Lab service: Equipment, Typing systems, Quality Assurance, International references, training, reagents		
	Group 4	Outbreak identification and response		
15.00 - 15.30	Tea/Coffee			
15.30 - 18.00	Continue			
19.00	Finalisation of short summary			

Time	Wednesday, 20 March 2002	Villa Tillmanns
09.00 – 10.30	Session 8: Plenary Session: Summary of the working groups	
10.30 – 11.00	Coffee break	
11.00 – 11.30	Session 9 Finding optimal methods for each region (AFRO, EURO, SEARO, PAHO, WPRO, EMRO) Split into NEW 6 working groups	
11.30 – 12.30	Working groups	
12.30 – 14.00	Lunch Break	
14.00 - 15.00	Continue	
15.00 - 15.30	Tea/Coffee	
15.30 - 18.30	Continue	
19.00	Final report	

Time	Thursday, 21 March 2002	Villa Tillmanns
09.00 – 10.30	Session 10 Plenary discussion	
10.30 – 11.00	Coffee break	
11.00 – 12.30	Continue	
12.30 - 14.00	Lunch Break	
13.30 - 15.00	Session 11 Recommendation and report	
15.00 - 15.30	Tea/Coffee	
15.30 - 16.00	Conclusion and Closure	